ZIRCONIUM ALLOY BARRIER HAVING IMPROVED CORROSION RESISTANCE

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Abstract of **CA1198231**

ZIRCONIUM ALLOY BARRIER HAVING IMPROVED CORROSION RESISTANCE A nuclear fuel element for use in the core of a nuclear reactor which has a composite cladding container having a substrate and a dilute zirconium alloy liner bonded to the inside surface of the substrate. The dilute zirconium alloy liner forms about 1 to about 20 percent of the thickness of the cladding and comprises from about 0.1% to about 0.5% by weight niobium and preferably from about 0.2% to about 0.4% by weight niobium, the balance being zirconium. The dilute zirconium alloy liner shields the substrate from impurities or fissin products from the nuclear fuel material and protects the substrate from stress corrosion and stress cracking. The dilute zirconium alloy liner displays greater corrosion resistance, especially to oxidation by hot water and steam than unalloyed zirconium. The substrate material is selected from conventional cladding materials, and preferably is a zirconium alloy having a higher alloy content than the dilute zirconium alloy liner.

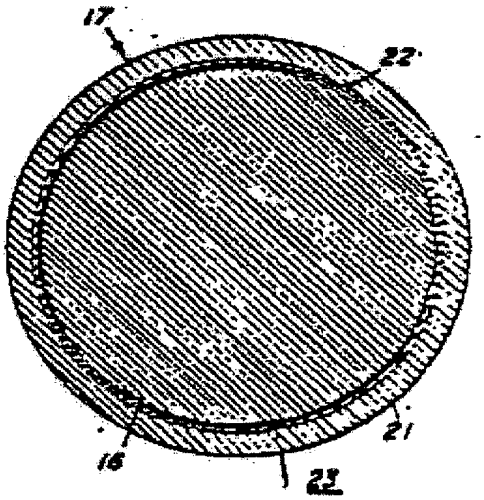

Fig. 2